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THE NATIONAL SHIPBUILDING RESEARCH PROGRAM

**Avondale Shipyards, Inc.
Long Range Facility Plan**

U. S. Department of Transportation
Maritime Administration

in cooperation with
Avondale Shipyards, Inc.
New Orleans, Louisiana

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FOREWORD

This document represents Avondale shipyards' Long Range Facility Plan. The plan is, in part, a response to an industry priority set forth by the Merchant Marine Act of 1970: to improve shipbuilding productivity and reduce shipbuilding costs while maintaining requisite high standards for critical processes and operations.

This long range facility plan is an integral part of Avondale Shipyards' Ishikawasima-Harmima Heavy Industries (IHI) Technology Implementation Program. The primary objectives are to decrease the time between the contract date and ship delivery and to increase productivity and reduce cost. The purpose of Avondale Shipyards' Long Range Facility Plan is to establish the overall parameters for the growth and development of both the Main and Westwego Yards looking as far as is practical into the future. Through this effort, development patterns can be established within which succeeding growth phases can be planned.

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Research Institute

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Executive administration and supervision were provided by O. H. Gatlin, Vice President, Corporate Plant Engineering and Maintenance, Avondale Shipyards, Incorporated; with R. A. Price, MarAd Research & Development Program Manager, Avondale Shipyards, Inc.

A Special Advisory Group consisted of Richard Muther, President, and N. L. Hannon, Vice President, of Richard Muther and Associates, Inc.

Advisory Committee responsibilities were fulfilled by the following officers of Avondale Shipyards, Inc.: A. L. Bossier, President; H. F. Arnold, Vice President; E. Blanchard, Group Vice President; G. Blanchard, Vice President; D. Clark, Group Vice President; T. Doussan, Vice President; and W. Harmeyer, Group Vice President; together with J. Garvey and R. Schaffran, Office of Advanced Shipbuilding Development, Maritime Administration, U. S. Department of Transportation.

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EXECUTIVE SUMMARY

1. SCOPE

1.1. Location

The Avondale Shipyards, Inc. Main Yard stretches for approximately 10,000 feet along the west bank of the Mississippi River. It starts 5,009 feet upstream from the Huey P. Long Bridge and is situated on the west bank of the river.

Considered as an integral part of the Main yard operations, but physically separate, is the Westwego Yard. This is located about five miles downstream, two miles by land across the bend in the river. See map in Exhibit I-1 for general location of both yards.

1.2. Meaning of "Long-Range"

The purpose of this project is to establish the overall parameters for the growth and development of both the Main and Westwego Yards looking as far as is practical into the future. Thus, development patterns can be established within which succeeding growth phases can be planned.

Essentially, we are looking into the future - 10, 15, 20, 25 years ahead. Many of the facilities which we now have will still be there, hopefully still being used to their optimum potential. Many new developments are being planned now; others that we, at this time, know nothing about will come along in the future. Our purpose is to determine:

- a. what is most likely to happen in the future;
- b. what are the major uncertainties, the "what-ifs," that are likely to occur, and how should we be ready to handle them;
- c. how best should we plan the long-range facilities layouts for the sites when they are filled, so that each short-range (1-3 years) project fits logically into the whole plan without blocking future development.

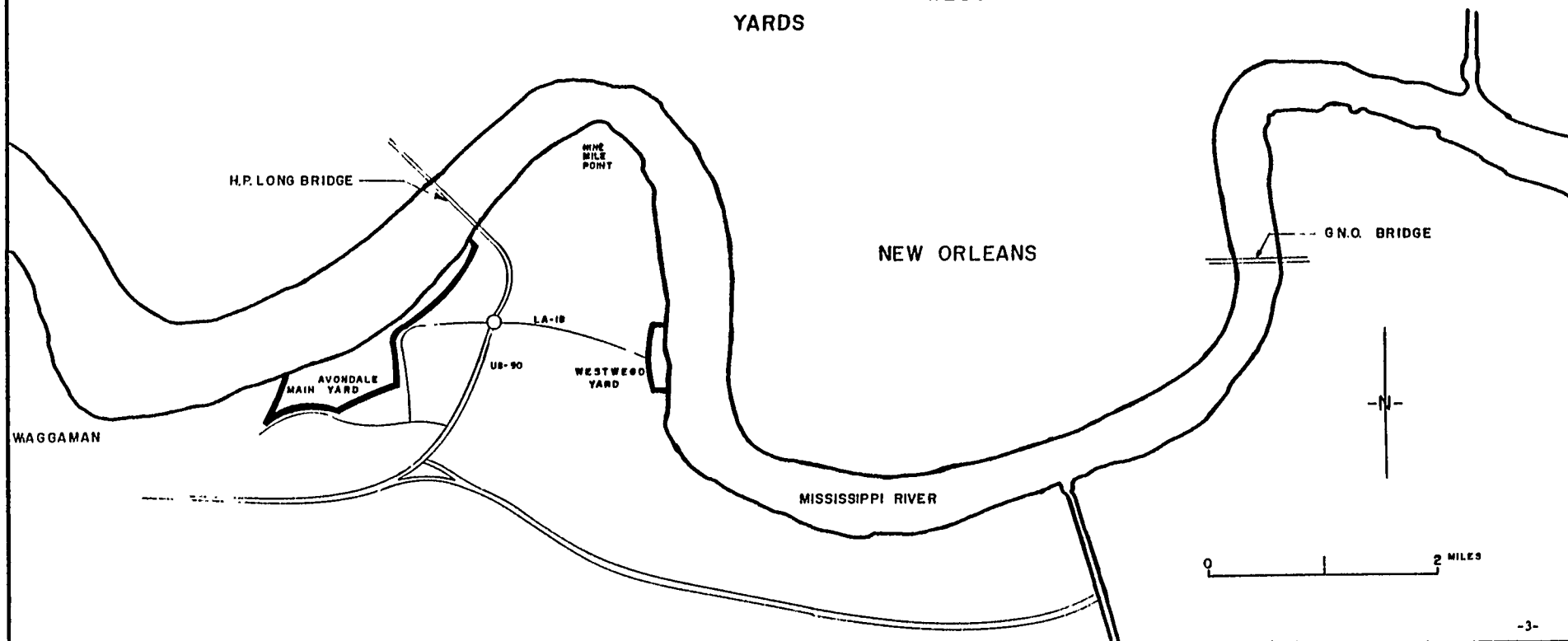
1.3. Short-Range Projects

The need to have an overall plan within which the short-range projects can be developed can best be understood by looking at some of the technology/productivity enhancement projects which have recently been done or are planned for the near future. Examples of these are:

- a. Semi-automatic Pipe Handling System and Fabrication Facility
- b. Semi-automatic Beam Line System
- c. Various IHI Systems, such as
 - accuracy control
 - production planning
 - computer application
 - design engineering
- d. Introducing the concept of Process Lanes.

All of these can have effects on layout, handling and the flow through the yards.

GENERAL ORIENTATION MAP SHOWING LOCATION
OF
AVONDALE'S MAIN AND WESTWEGO
YARDS



2. MISSION OF THE YARDS

The long-range mission of Avondale's Main Yard and smaller Westwego Yard is threefold and can be stated as follows:

- a. The profitable construction of **new** ships, larger ones at the Main Yard, smaller at Westwego. This new construction can be any mix of conventionally-powered commercial and navy ships.
- b. To become major providers of repair and overhaul services for virtually all types of vessels that call at the Port of New Orleans.
- c. To maintain a balanced labor force, to utilize spare capacity and to keep profit margins up by doing:
 - other-than-ship maritime new construction repair and overhaul work such as submersible or semi-submersible drilling rigs;
 - pipe and heavy steel construction work for petrochemical, modular power plant, and other similar industries.

3. PRIMARY OBJECTIVES AND GOALS

3.1. Marketing Objectives and Market Share

The company's primary objective is, for the foreseeable future (the next 5-plus years), to get the best possible share of all U.S. merchant and navy competitive new ship construction. It expects to achieve much of this by enhancing its competitive position through aggressively implementing technology improvements in manufacturing methods and techniques and in systems and controls. Also, it expects to gain through improvements and modernization in facilities, layout and materials handling.

3.2. New Ship Construction

New ship construction can be any mix of commercial and navy ships, the yards having the flexibility to handle all types of conventionally-powered vessels. It is not in the current long-range plans for Avondale to undertake new construction of nuclear-powered navy ships. However, Avondale again has the flexibility to adapt its new construction work to meet any major changes that might occur in the methods of ship propulsion in the future.

The new construction of commercial ships tends to be closely tied to the national and international economies. The new construction of navy ships depends to a large extent on government/department of defense/military policies, and can vary from administration to administration.

Because of the many variables involved and the heavy competition in new construction, Avondale has felt the need, especially over the past decade, to broaden substantially the base of types of work being done at both yards. One of the key factors in this is the need to stabilize the work force; another is the importance of maintaining/improving profit margins.

3.3. Ship Repair and Overhaul

Avondale has always done a certain amount of ship repair and overhaul work. With the Wet Dock No. 3 extension being built and the new dry dock at the Main Yard and the on-going study of another drydock for Westwego, one of the objectives for both yards is to become major providers of repair and overhaul services for virtually all types of vessels that call at the Port of New Orleans. This work will be aggressively sought in its own right; it will also be sought to help balance the "valleys" in new ship construction work.

3.4. Other-Than-Ship Work

Ship new construction and repair and overhaul work tend to be variable. There is a strong desire to maintain a balanced labor force, to keep profit margins up, and to utilize space and yard capacity where appropriate. A further objective for both yards is to seek actively:

maritime, other-than-ship, new construction and repair and overhaul work such as submersible or semisubmersible drilling rigs;

- pipe and heavy steel construction work for petrochemical, modular power plant, and other similar industries.

It is recognized that once primary contacts/contracts have been established in the non-maritime area, it is very important that these should be maintained. It may well be found desirable, long term, to dedicate certain areas of the yard, especially fabrication, to this type of work to ensure continuity.

4. HISTORY OF THE YARDS

4.1. Main Yard

In 1938, the company began operations as Avondale Marine Ways. Equipment once used to ferry railroad cars across the Mississippi River was purchased and a marine repair service was started.

At the outbreak of World War 11, Avondale started marine construction. Part of the land now used for new construction on the river side of the levee was acquired, together with the land west of Old Highway 18 now occupied by the Pipe Shop, Warehouses and Engineering. Expansion was rapid, and in the late '40's the rest of the river frontage land now used for new ship construction was bought.

During wartime, the company developed a high degree of flexibility which served it well after the war when new ship construction declined. Dredges, offshore oil rigs, sugar mill equipment, lock and dam components, and many other marine and industrial products were built. This helped to hold the work force together and lead to future expansion.

In the 1950's, the water frontage down to the present gas-freeing operating area was bought.

Then in January, 1959, Avondale Shipyards, Inc. was sold to, and became a wholly owned subsidiary of, the Ogden Corporation.

In the 1960's, major acquisitions were made of the land now used primarily for steel storage and fabrication.

Since then, many smaller parcels of land have either been acquired or leased with the long term objective of the company controlling all land from the upstream property line, bounded by Highways LA 18 and LA 541, and by River Road to a point 500 feet upstream of the Huey P. Long Bridge (no operations may be performed closer to the bridge than this). It will no doubt be some years before this final objective is reached at the Main Yard.

The present extent of land owned and leased for the Main Yard is shown in Exhibit IV-1.

Having started new construction originally with small boats and barges, the Main Yard now has two sets of building ways available. The downriver set can accommodate vessels with 126 ft. beam and up to 1,000 ft. long in five building positions. The upriver set can accommodate vessels with 170 ft. beam and up to 900 ft. length in two positions.

The downriver launching ways are the slope type which allow the conventional side-launching of vessels. The upriver ways are horizontal type which terminate at a concrete deck at the water's edge. The ready-for-launch vessel is jacked across the building ways onto an Avondale-built drydock which has had 20 ft. wide wing walls removed. When the vessel is positioned and the wing walls have been replaced, the drydock is rotated outwards, ballasted, and the vessel floats free, launched.

The drydock procedure can also be used in reverse to raise vessels, large drilling rigs, etc. and jack them across onto land for major overhaul, jumboizing and heavy repair work.

In recent years, more and more non-ship construction work is being done in order to utilize all facilities as effectively as possible, to keep a balanced labor force, and to maintain profit margins.

4.2. Westwego Yard

Westwego operations started as a small ship repair yard, as a satellite of the Main Yard, about 25 years ago. Operations expanded, new construction of smaller ships was started, and in 1978, the Westwego Yard became a division of the company in its own right. This yard now has a diversified capability and specializes in small ships, barges, Coast Guard cutters, tugs, towboats, offshore supply vessels, drilling rigs, drilling ships, and the smaller sizes of tankers and cargo ships. Vessels are side-launched, which makes the facility adaptable for series production. They are completed at Westwego to the pre-outfitting stage only. They are then towed to the Main Yard for final outfitting.

Westwego has a floating drydock and undertakes overhaul and repair work of smaller barges. The yard also does steel fabrication, such as deck houses, to feed operations at the Main Yard.

All land occupied by the Westwego Yard is leased. The extent of this and present operations is shown in Exhibit IV-2.

4.3. Participation in National Shipbuilding Research Program

In 1971, Avondale Shipyards, Inc. started active participation in the National Shipbuilding Research Program (NSRP). This program is a cooperative effort between the Department of Commerce (now Department of Transportation) Maritime Administration (MarAd) Office of Advanced Ship Development and the U.S. Shipbuilding Industry. The goal of the program is the improvement of shipbuilding productivity in the U.S. through the application of advanced levels of production technology.

Many different "productivity enhancement" studies have been done at Avondale, for example:

- the new semi-automatic pipe handling system and fabrication facility is virtually complete;

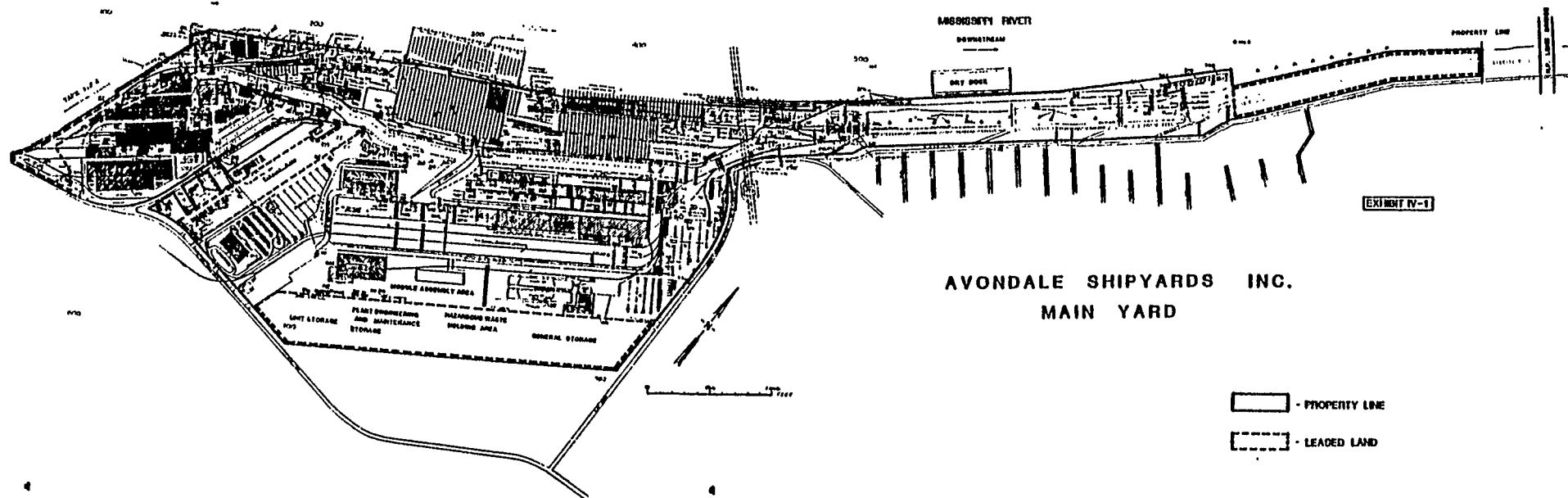
- a major study done by IHI of Japan recommending many design changes, fitting sequence changes, the need for accuracy control;

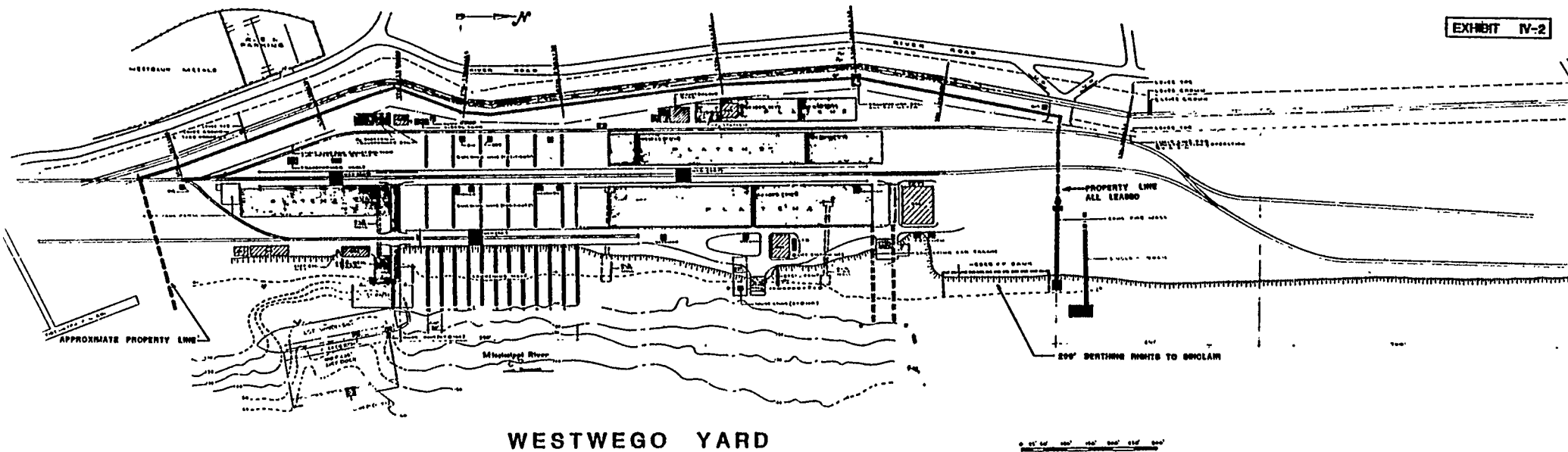
- also done by IHI, the concept of "process lanes," using the principles of group technology applied in the shipbuilding and heavy steel construction environments;

- the semi-automatic beam line study is complete; the concept is feasible, it is practical, it is workable, and offers trainable benefits;

- the semi-automatic web line study is underway; the concept is dependent on the beam line study results which established the tolerance needed for this function.

Part of the MarAd NSR Program has been the importance of developing comprehensive Long-Range Facilities Master Plans for the major U.S. shipyards. This is to ensure that growth, modernization and productivity enhancement programs are properly coordinated within the overall Long-Range Facilities Master Plan at each yard. It is within this scope that this Long-Range Facilities Master Plan for the Avondale Main and Westwego Yards has been developed.





WESTWEGO YARD

5. BASIC ASSUMPTIONS ON WHICH THIS LONG-RANGE FACILITIES PLAN RESTS

5.1. Commercial Ship New Construction

Commercial ship new construction will be slow and very competitive for at least the next five (5) years.

5.2. Navy New Construction

Competitive bid Navy new construction will continue as the fleet expands and modernizes, which will include auxiliary and combatant class vessels.

5.3. Improvements in Design, Methods and Procedures

Avondale will continue to improve its competitive position by staying in the fore-front of state-of-the-art design and manufacturing methods and procedures.

5.4. Availability of Labor

There is a sufficient pool of qualified or trainable labor within commuting distance to meet the long-range growth objectives of the yards.

5.5. Navy Ship Repair Work

Navy ship repair work will be actively sought. However, this is not seen to be a large volume of business because of the small number of Navy ships in Gulf waters.

5.6. Navy Crew Berthing

The company will not provide permanent crew berthing facilities for Navy personnel. Should the need for crew berthing arise, special temporary arrangements will be made at that time.

5.7. New Ship Hull Construction and Pre-Outfitting

New ship hull construction will be cycled through the building ways on a "minimum-time-on-the-ways" routine basis.

This is regardless of whether the vessel is commercial, navy, tanker, dry cargo, LASH, complex, simple, etc. The erection function on the ways is basically a "joining of pre-outfitted sections." The simplicity/complexity of construction will be handled to a large extent in the pre-outfitting work stages. Timing, control and design-and-construction accuracy are of the essence. Adequate staging space will be provided for holding the pre-outfitted sections prior to erection on the ways.

5.8. Other New Construction Work

If new construction work is slack, other maritime or non-maritime work will be brought into both yards to maintain a balanced labor force.

5.9. Rates of Improvement

The present rate of productivity enhancement, methods improvement, will continue for the foreseeable future if adequate work to sustain this effort can be obtained.

5.10. Main Yard - Limits on Expansion

The Main Yard will not be expanded upstream into the adjoining tank farm. It cannot be expanded downstream because of proximity to the Huey P. Long Bridge. It will not be expanded across Highway LA 18 into the rail yard. There are no plans at this time to expand across Highway LA 541.

5.11. Parking for New Wet Dock No. 3 Extension

Some space may be acquired in the future across River Road from the new Wet Dock No. 3 Extension to provide parking for those working in that area, if required.

5.12. Acquisition of Property and Closing of Old Highway 18

The company may ultimately acquire all the small parcels of property along Old Highway 18, opposite Gate 5. old Highway 18 will be closed to public traffic and will be integrated as part of the Main Yard.

5.13. Acquisition of Remaining Property Between Highways LA 18 and LA 541

The company may acquire or lease the remaining property between Highways LA 18 and LA 541. This property has been included in the preparation of the Long-Range Facilities Master Plan.

5.14. Patterns of Shiftwork

The pattern of shiftwork at the yards will continue generally as at present:

- Fabrication: 1 shift, 5 days/week;
- Erection: 2 shifts, 5 days/week/;
- All NC machine work: 2-3 shifts, 5 days/week in Machine, Pipe and Plate Shops;
- Drydock, Repair: 3 shifts, 5-7 days/week depending on load;
- Plant Engineering & Maintenance: service as needed on all shifts.

However, should the workload increase, fabrication and erection could go to 2 or 3 shifts as appropriate.

Shifts are eight hours.

Some staggering of shift start and finish times now takes place in order to ease the traffic loads at rush hours. Additional staggering could well occur in the future.

5.15. Permits for Operating on Batture Land

Permits will be available to put up service buildings, access roads, small platen or similar work areas on all batture land serving Wet Dock No. 3 Extension and the New Drydock. This would be similar to the work areas currently serving Wet Dock No. 3.

5.16. Change of Slope of Levee

The Army Corps of Engineers will be changing the slope of the levee from approximately 4:1 to 5.5:1. This will occur from the junction of River Road and Bridge City Road to beyond the Huey P. Long Bridge. River Road will be re-routed at least 100 feet further away from the river bank. This should not affect Avondale's operations long term, but there may be some short term disruption.

5.17. Westwego Operations

The Westwego Yard will continue to be leased long term. No major changes, other than productivity enhancement programs, are foreseen in the size or scope of the Westwego operations.

5.18. Marine Railway

All marine railway operations will be discontinued and the facilities will be de-activated.

6. BASE SCENARIO - LONG RANGE FACILITIES MASTER PLAN

6.1. Business Growth

Avondale Shipyards, Inc. business will grow at a fairly steady rate of 3-5% real growth a year once normal operations have been established following the 1980-82 recession.

6.2. Purchase of Land

The company will be able to buy the land now leased from Dr. Robberson and the Marrero Land Improvement Association. Also, the company will be able to buy the additional 33 acres from Marrero enclosed by LA 18 and LA 541. All other properties will be acquired so that Old Highway 18 will be closed and become part of the Main Yard.

6.3. New Mississippi River Bridge

No new bridge across the Mississippi will be built through the Avondale Main Yard (for example, as an extension of LA 541). Nor will a new bridge be built parallel and near to the Huey P. Long Bridge on the upstream side, taking part of the Avondale controlled property. Any new bridge will either be upstream towards Waggaman or on the downstream side of the Huey P. Long Bridge, and will not directly affect the main yard.

6.4. Westwego Yard

The Westwego Yard will not grow any larger than its present size. It is on leased land (5 year lease, with two options to extend, soon to be renegotiated). The land will not be bought. There are no plans to make major investments at the Westwego Yard on the leased land. Operations will continue at Westwego, basically as they have done in the past.

6.5. Methods Improvements

Methods improvements, upgrading of procedures, modernization of equipment and facilities will continue at both yards as they have been doing during the past five years. Many different "improvements" are in the planning, for example:

- implementation of plazma/gas burning;
- automating the Sheetmetal Shop;
- computerize the material control system;
- upgrade Main Yard sewage system;
- crane replacement plan;
- refurbish and extend Wet Dock No. 1;
- implementation of the beam line;
- implementation of the web line;
- replace Shop No. 1;
- replace rental barges with purchased barges;
- replace aerial platforms with dock arms in all drydocks;
- upgrade fire water systems to provide additional fire protection for Naval vessels under construction or in repair.

6.6. Product Mix and Employment Levels

The product mix of work done in the yards will vary considerably. New construction work will be from small to large ships, commercial and navy; repair and overhaul work of all kinds on ships, drilling rigs, etc. will grow; other nonship steel fabrication, pipework and machine shop work will be actively sought. All of this will be done in order to maintain

a total minimum balanced employment level of approximately 5,500. At peak production levels in the future, it is not expected that total employment at both yards will exceed 5,500:

- 2,500 New Construction

- 1,000 Repair

- 1,500 Modular

- 500 Engineering

- 5,500 Total

6.7. Land for Parking

One to two acres of land will be bought or leased on the land side of River Road, near the new drydock, to be used for parking.

6.8. Underroof Storage - Long Range Needs

Up to now, the company has been renting a large (120,000 Sq. ft.) warehouse, off-site, some miles away. This was needed, but the double handling has been a problem.

With the introduction of the proposed new technology improvements (process lanes, production and accuracy control, etc.), it is expected that there should be better flow through the various operations and considerably less need for in-process and underroof storage. With this in mind and the current downturn in business, this off-site storage rental is being discontinued. Space is being found on-site to accommodate the remaining items being brought back.

It is anticipated now that no additional underroof storage will be needed in the short (1-3 years) range and possibly in

the longer range. However, with projected increases in business growth, there is the possibility/probability that sometime in the future additional on-site underroof storage will be needed. We have, therefore, shown in this Long Range Facilities Master Plan where space should most logically be dedicated in the Main Yard for such a building.

6.9. Offices

Many activities are now housed in trailers and in some older buildings such as 210, 212, and 255 adjoining the main parking area. As business grows, we see the need in the future for more administrative and engineering office facilities. Taking all these into account, plus the "near-future" acquisition of the properties opposite Gate 5 and the closing of Old Highway 18, we project the following long-term needs:

eliminate most of the trailers; a few may still be needed, situated in the back of the parking lot, for visiting contractors;

eliminate Buildings, 210, 212 and 255;

construct a Production, Material Control office building of approximately 40,000 sq. ft., and utilize existing building for customers and other offices;

- construct a new Program Management building, probably of about 30,000 sq. ft.;
- construct a new Engineering building of about 50,000 sq. ft. to replace part of the buildings that must be changed in size due to the levee relocation project.

Each of these new office buildings should be multi -story. The buildings should be expandable sideways, if ever required. Experience has shown that it is not really practical (and usually very disruptive and expensive) to add another floor on top of an existing, in-use, office building.

6.10. Additional Fabrication Space

With any increase in business, and especially with the desire to do increasing amounts of non-maritime steel construction, we do not foresee the need to provide a substantial amount of additional fabrication platen area to meet these requirements.

6.11. Outside Storage

The heavy stress on having the right in-process item available at the right time in the pre-outfitting and erection cycles has added substantially to the requirement of open areas for readily accessible storage. We see this trend continuing and have projected the need for more space to be allocated.

6.12. Long-Range Master Site Plans

We have looked at various ways in which the Main Yard could be developed long term. The two best alternatives are shown in Exhibits VI-1 and VI-2. While both alternatives give excellent tie-in with the present and proposed "process lanes" handling systems, we feel that Alternative B shown in Exhibit VI-2 is the "cleaner" of the two and gives the greater degree of flexibility for short and interim stage facilities planning.

We recommend that the Long Range Facilities Master Plan shown as Exhibit VI-2 be adopted as the basic plan for Avondale's Main Yard.

In the plan we show major extensions to the upstream building ways and the extension of the downriver end of the drydock. The proposed layout is shown in principle in Exhibits VI-1 and VI-2. It is shown in more detail in Exhibit VI-3.

The end result of the following changes will be to provide an improved layout for ease of control, improve material handling, and enhance work flow capability for the effective introduction of the "process lanes" concept:

- extend the service dock to tie it and the associated crane systems together with Wet Dock No. 1;
- fill the old marine railway area to the adjoining land level;
- extend other craneways as shown;
- relocate pivot point for the drydock; add the extension to the downriver end of the drydock;
- extend the building ways;
- provide re-routed rail services as required.

6.13. Space Allocation

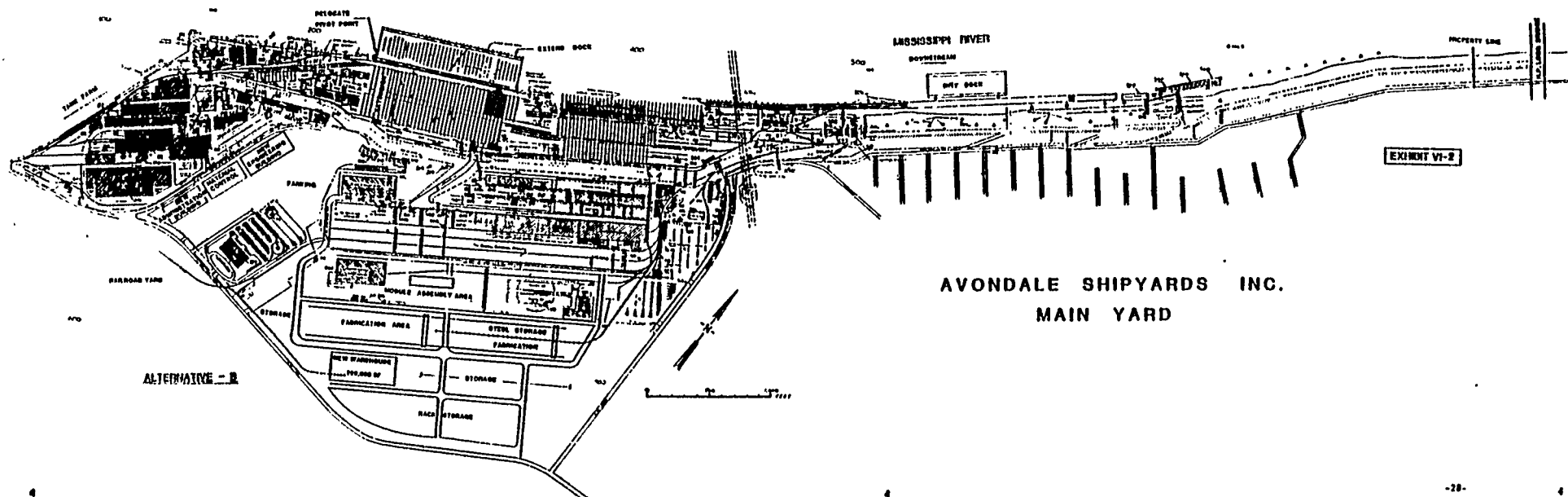
We show for reference in Exhibit VI-4 the present allocation of space for all Main Yard controlled (owned or leased) property. This is shown both by acres allocated and percentage of the whole.

In Exhibit VI-5 we show the projected allocation of space for the long-range (10-20 years) development of the Main Yard when the site is full, as shown in the Long-Range Facilities Master Plan in Exhibit VI-2.

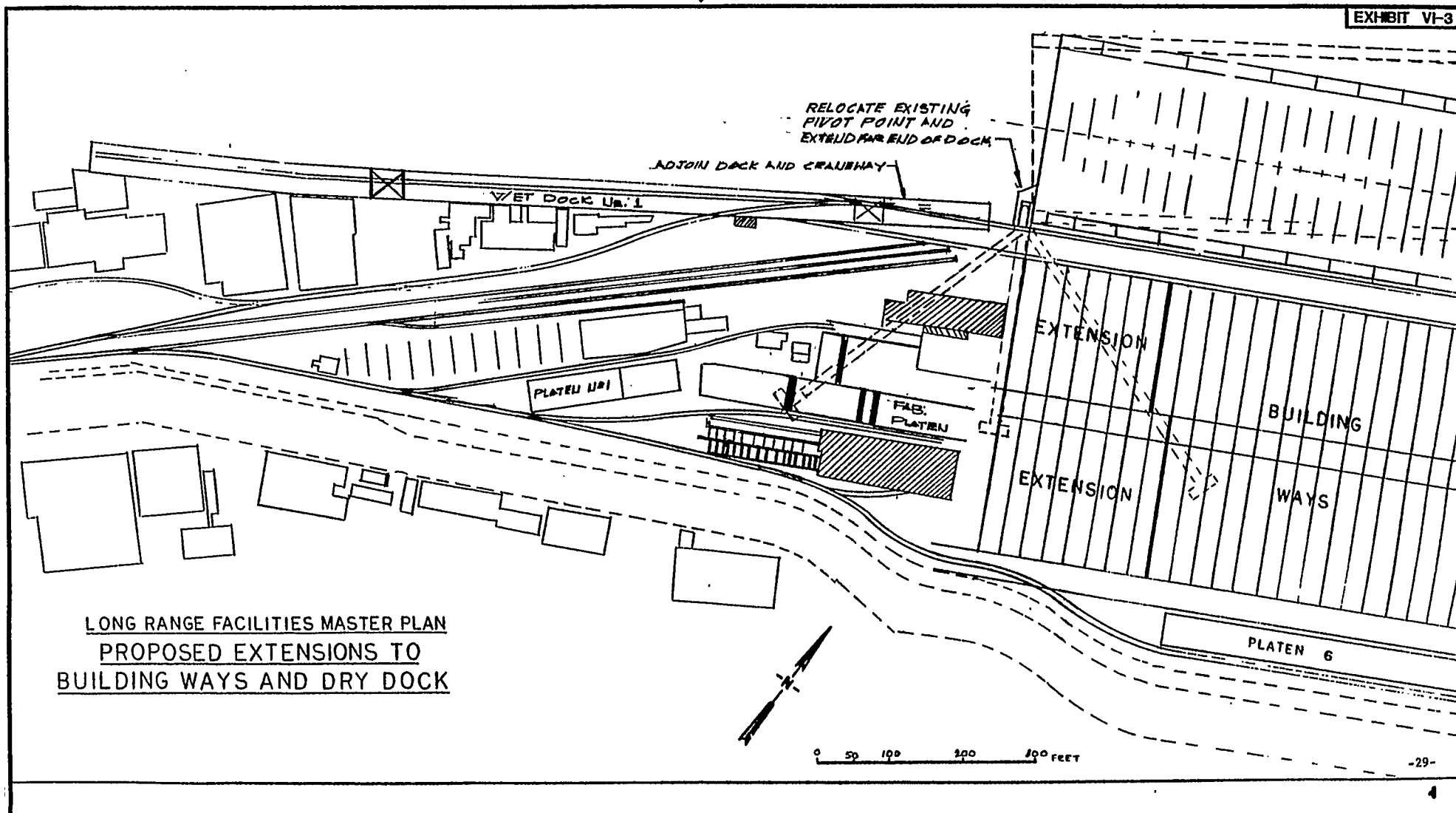
6.14. Staging - General Approach

- 1982 New Pipe Shop and extension completed.
- 1983-85 Acquire all properties along Old Highway LA 18 and arrange to have the road closed.
- 1984-87 Negotiate with Marrero Land Improvement Association to acquire the remaining land enclosed by Highways LA 18 and LA 541. If possible, arrange to purchase this and the adjoining currently-leased property.
- 1982-84 Change the functions of all appropriate fabricating areas to implement the concept of "process lanes" operating.
- 1983-86 Add new support buildings and small platen area to serve the new drydock and Wet Dock No. 3 Extension area.
- 1984-86 Acquire or lease parking area across River Road to serve the new drydock area.
- 1984-87 Start moving outside storage into the newly acquired Marrero property at LA 18 and LA 541. As this moves out, start constructing the proposed new fabricating area. Continue by stages until completed.
- 1985-86 Construct new Engineering Building. Temporarily use part of this for administration services.
- 1984-87 Construct new warehouse building.
- 1987-92 Construct new building. Demolish old buildings 210, 212 and 255.

NOTE : We recommend that the Long-Range Facilities Master Plan be reviewed annually. It should be up-dated and revised, if necessary, in the light of future current experience.



**AVONDALE SHIPYARDS INC.
MAIN YARD**



AVONDALE MAIN YARD

SPACE ALLOCATION - APRIL 1982

	ACRES	<u>%</u>
Buildings (excluding trailers and off-main-site facilities) 1,211,687 sq. ft.	27.8	10.8
Building Ways	18.2	7.1
Platens	19.6	7.6
Outside Storage (some not fully used)	48.1	18.6
Gas-Freeing Plant Area (mainly water)	3.5	1.4
Water Area (owned property)	4.8	1.9
Parking (on-site)	26.0	10.1
Levee (unavailable-for walking)	29.2	11.3
Undeveloped Batture (waterfront) Land	14.8	5.7
Land with Treilers in use	1.6	0.6
Old Marine Railway Area	1.4	0.5
Not-Yet-Used Private Homes Areas	1.8	0.7
	196.8	76.3
Circulation Areas, Roads, Rail, Craneways, Unrecorded Areas around buildings. Unrecorded Set-Down Areas, Green Areas, Set-Backs, etc., etc.	58.3	22.6
Total Main Yard On-Site Property (owned or leased)	255.1	98.9
Storage Off-Site Leased (expires June, 1982)	2.8	1.1
TOTAL MAIN YARD CONTROLLED PROPERTY		

AVONDALE MAIN YARDSPACE ALLOCATION - LONG-RANGE DEVELOPMENT-SITE FULL

	<u>ACRES</u>	<u>%</u>
Buildings - Present, some rebuilt	27.8	
New Warehouse	2.8	
New Administration/Engineering	2.5	
New Buildings on Batture Land	0.4	
Other New Manuf. Buildings	3.0	
(Approximately 1,590,000 sq. ft.)	36.5	12.4
Building Ways	20.7	7.0
Platens - Present	19.6	
- Proposed New Fabrication	8.3	
	27.9	9.5
Outside Storage - Present	48.1	
Less for New Platens	[15.7]	
	32.4	
- Proposed	21.6	
	54.0	18.3
Gas-Freeing Plant Area (mainly water)	3.5	1.2
Water Area (owned property)	4.8	1.6
Parking (on-site)	34.0	11.5
Levee (unavailable for walking)	29.2	9.9
Undeveloped Batture (waterfront) Land	11.5	3.0
	222.1	75.3
Circulation Areas, Roads, Rail, Craneways, Unrecorded Areas around buildings, Unrecorded Set-Down Areas, Green Areas, Set-Backs, etc., etc.	72.9	24.7
TOTAL MAIN YARD PROPERTY	295.0	100.0

7. ALTERNATIVE SCENARIOS

7.1. What Might Happen in the Future

While urging the adoption of the basic Long-Range Facilities Master Plan described in Section 6-12, we recognize that many different things could happen which could affect the plan in some way or another.

One of our main objectives is not to put management into an irretrievable position where they have only one way to go. Considering the uncertainties, or "what-ifs," of the future, we want to give management a high degree of flexibility and options, though all tied to the recommended Facilities Master Plan.

We have listed in Section 7.2 a number of uncertainties which could occur. To help us evaluate their likelihood of occurrence and relative impact on the yards, we have used the following rating scale:

UNCERTAINTIES RATINGS SCALE

:	:	:	Impact on Yard:	:
:	:	:	- Operations	:
:	:	Likelihood	- Location of New	:
:	:	of	Buildings	:
: Rating	:	Occurrence	- Future Growth, etc.	:
:	:	:	:	:
: A	:	Almost Certain	Very High	:
:	:	:	:	:
: E	:	Strong Probability	Substantial	:
:	:	:	:	:
: I	:	Possible	Important	:
:	:	:	:	:
: O	:	Some Chance	Some Impact	:
:	:	:	:	:
: U	:	Very Unlikely	Very Little	:
:	:	:	:	:

7.2. Uncertainties

Various factors which could occur in the future are listed below. In each case we have noted the likelihood of occurrence and potential impact on the yards.

	: Likelihood :	Impact :
	: of :	: on :
	: Occurrence :	: Yards :
a. New Mississippi River Bridge will be built extending LA 541 to Hickory Avenue on the East Bank, through the middle of the Main Yard.	: I :	: A :
b. New Mississippi River Bridge will be built parallel and near to Huey P. Long Bridge, upstream side, taking part of Avondale controlled property.	: I :	: I :
c. New Mississippi River Bridge will be built either upstream towards Waggaman or downstream of the Huey P. Long Bridge.	: I :	: U :
d. Dr. Robberson refuses to sell his currently leased property to Avondale.	: E :	: I :
e. Owners along Old LA 18 opposite Gate 5, including "Bill's Place" (M&R Associates, Inc.), will not sell and the road cannot be closed to public traffic.	: O :	: I :
f. Marrero Land Improvement Association refuses to sell its current and probably future (33 acres) leased land to Avondale.	: I :	: I :
g. The Southport Petroleum Company (tank farm and associated docks) could be induced to move out or sell their property, especially their batture land, in order to allow Avondale Main Yard to expand upstream.	: U :	: E :

	: Likelihood of Occurrence	: Impact on Yards
h. No land is available to buy or lease on the landward side of River Road to provide parking close to the New Drydock area.	u	I
i. Overall business grows so rapidly that it outstrips the capacity of the Main Yard within the next 20 years.	0	E
j. Non-maritime business grows to such an extent that more land is needed off-site.	0	I
k. The owners refuse to renew the lease on the Westwego Yard.	u	A

7.3. Options

7.3.1. The Mississippi River Bridge Problem: Uncertainties (a),

The one certainty is that within the next 5-15 years a new road traffic bridge, probably a minimum of six lanes wide, will be constructed across the Mississippi River somewhere between Nine Mile Point and Waggaman.

7.3.2. Purchase of Dr. Robberson's and Other Old LA 18 Properties: Uncertainties (d) & (e)

The strong probability is that Dr. Robberson's property, and all the other remaining properties opposite Gate 5, can be purchased. With this in view, we recommend planning long-term to put the projected new Administration and Engineering offices generally as shown in the basic Long-Range Facilities Master Plan, Exhibit VI-2. If it becomes absolutely impossible to buy the properties when the time comes to put up either or both of the new buildings, then re-evaluate the situation at that time.

7.3.3. Purchase of Marrero Property: Uncertainty (f)

If the Marrero Land Improvement Association sells its property, then we recommend go with the basic plan in Exhibit VI-2. However, if the property can only be leased for the long term, the option is open to erect a large warehouse building, on owned land, in the position shown in Exhibit VII-2, rather than as shown in the basic plan.

It is desirable to have as much parking as possible centrally located in the Main Yard. This will be cut down considerably (by 4 plus acres, 600 plus cars) if the warehouse has to be located as in Exhibit VII-2.

7.3.4. Availability of Tank Farm: Uncertainty (g)

It is unlikely that the Southport Petroleum Company property (the tank farm and associated docks) upstream from the Main Yard will become available for purchase in the foreseeable future. However, should this possibility occur, we strongly recommend that the company buy the property, especially the batture land. This would give an excellent opportunity to extend Wet Dock No. 1 upstream to provide additional outfitting and repair berthing facilities.

If the proposed new highway bridge is forced through, splitting the yard at LA 541, then we recommend that the company do everything possible to acquire the Southport Petroleum Company property. The property could be developed either for a new series of building ways to avoid conflict with the new bridge, or as extension to Wet Dock No. 1 as previously described.

Should either of these possibilities occur, we recommend that the Long-Range Facilities Master Plan be revised accordingly at that time.

7.3.5. Parking Near The New Drydock: Uncertainty (h)

It is almost certain that 2-3 acres of land can be acquired across River Road to provide parking near the new Wet Dock No. 3 Extension Drydock.

We understand that sometime during the next 5 years the Army Corps of Engineers will be changing the slope of the levee from 1 in 4 to 1 in 5.5. As a result, the present River Road will probably be moved 100 to 200 feet further away from the river. This should be taken into account when purchasing the appropriate land for parking.

If for some reason it is not possible to provide this parking across River Road, then one option could be to buy out the parking rental entrepreneur on the landside of LA 541 Bridge City Road, at the River Road Junction; then, to buy or lease additional parking land continuing on around LA 541 towards the large electricity pylon and transformer station. However, this option is not too desirable because this stretch of road is extremely dangerous during rush hours. With an increased amount of parking in the area, it would almost certainly require special policing by either the company or state police.

7.3.6. Growth Outstrips Yard Capacity: Uncertainty (i)

The company is currently going through lean times (as are most in the industry) because of the national and international recession. It is hoped that over the next few years business will get back to "normal," and then start the projected growth, in real terms, of 3-5% a year.

Combined employment at the Main and Westwego Yards has been as high as 10,000 people. The company is now considering 5,000 total as being a more viable maximum, with growth coming through technology and associated systems and procedures improvements. However, management philosophies can change. If growth were to be substantially more than now foreseen, total yard capacity could be outstripped, with the effect of undesirably curtailing future growth possibilities.

There are several options, for example:

- Start a new subsidiary yard, similar to the Westwego principle, within 10 miles upstream on the West Bank, and "hive off" some of the activities to there.
- Make the management decision to curtail future growth to the maximum handleable by the then current Main and Westwego Yards.

7.3.7. Non-Maritime Business Outstrips Capacity Uncertainty (j)

It is quite possible that while the level of maritime business stays within the capacity of the yards, the non-maritime business grows to such an extent that it outstrips the available capacity; or that the non-maritime business could grow to

where it was jeopardizing the successful functioning of the maritime work, which is the primary mission of the company.

Again, there are options:

- Curtail the non-maritime business to keep it within available capacity, and so that it does not jeopardize maritime work.
- Transfer the excess of non-maritime work to another Avondale facility if suitable capacity could be made available.

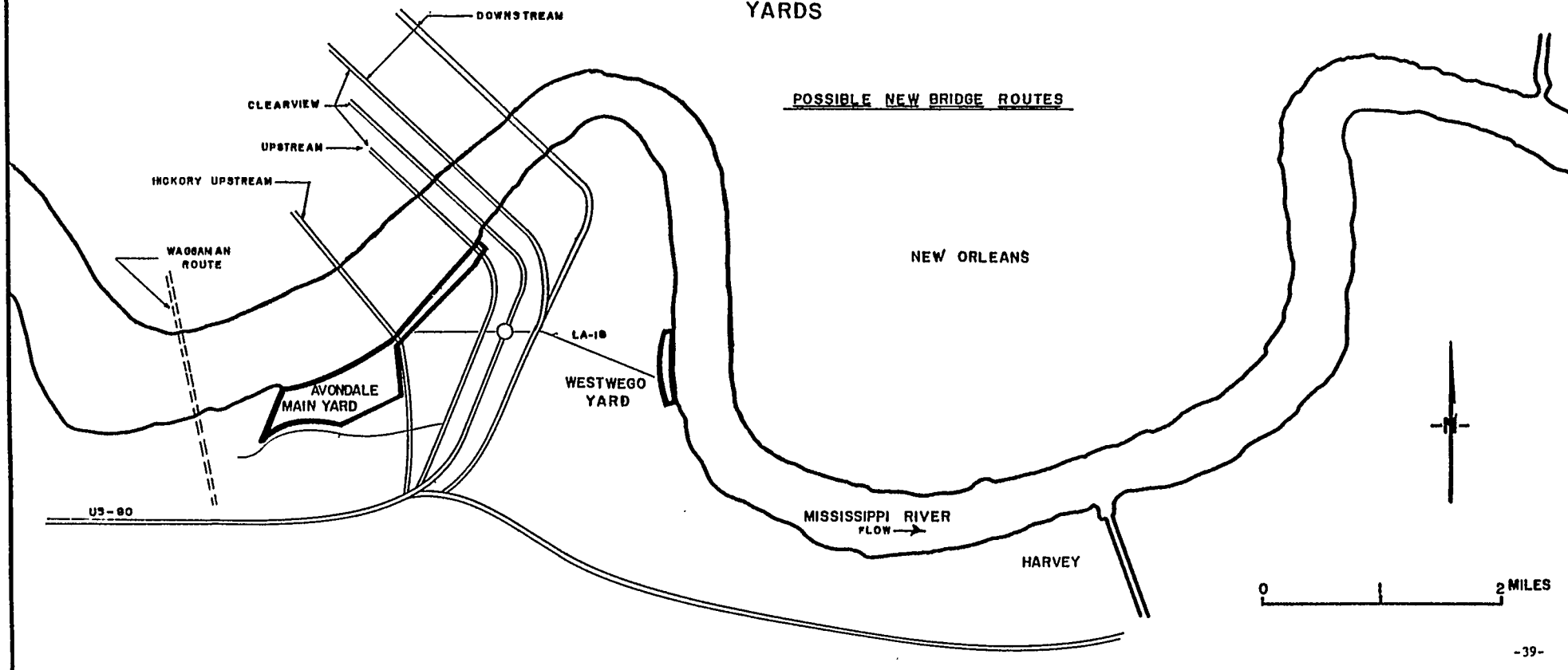
7.3.8. Westwego Yard Lease: Uncertainty (k)

It is almost certain that the Westwego Yard lease can be renegotiated for a further 15 years when the renewal comes up relatively soon. In the unlikely event that the lease cannot be renewed, there appear to be various options such as:

- Simply close down the Westwego operations. Transfer the drydock and other repair facilities to the mooring area at the bridge end of the Main Yard, next to the gas-free plant.
- Try to purchase 20-30 acres of suitable batture land, upstream of the Main Yard. Set up a new ship construction and repair facility similar to a state-of-the-art version of the present Westwego operations.

Whatever is done in the future, try not to get caught again in the situation of putting a lot of investment into leased property.

GENERAL ORIENTATION MAP SHOWING LOCATION
OF
AVONDALE'S MAIN AND WESTWEGO
YARDS



8. FACILITIES SUPPORT DATA

8.1. Blast and Paint Facilities at the Main Yard

Ship Section Blast and Paint Building - Capacity for blasting two ship sections up to 140 tons each, simultaneously in blasting rooms. After blasting, sections are transported into the paint section of the building which has six different positions and an operable ventilation system.

Plate Blast and Paint - Continuous operation of blasting, painting and drying raw plates in sizes up to 12' wide by means of a conveying system. This line is loaded by means of a magnetic type hoist at the start of the conveying system. The finished plates are delivered to the adjacent Plate Shop by collocater.

Structural Blast and Paint - Consists of a continuous conveyor that carries structural shapes, from flat bars and up to 36" wide flange beams, through a blasting operation at a rate of 4 to 15 fpm depending upon the section being blasted. After blasting, the shape is conveyed through a paint booth and into the electronically controlled drying oven.

8.2. Buildings - Main and Westwego Yards

8.2.1. Building List - Main Yard (Page 52)

8.2.2. Building List - Westwego Yard (Page 57)

8.2.3. Analysis, Allocation and Summary of Underroof
Space - Main Yard (Page 58)

8.3. Building Ways

Allocation of Space on Owned or Leased Property

Main Yard - Upstream

Horizontal type terminating at a concrete deck at water's edge. Ready-for-launch vessel is jacked across onto the drydock* which has had wing walls removed. Wing walls are replaced, drydock rotated out, ballasted, vessel floats free, launched. Maximum ship size 900' x '170' beam.

421,800 sq. ft. = 9.7 acres

*NOTE : Drydock has 220' width between wing walls

Main Yard - Downstream

Sloping type which allows for conventional side-launching of vessels. Maximum ship size 1000' x 126' beam.

369,400 sq. ft. = 8.5 acres

Total 18.2 acres

Westwego

Sloping type which allows for conventional side-launching of vessels. Maximum ship size 400' x 90' beam.

131,250 sq. ft. = 3.0 acres

8.4. Crane Services - Main and Westwego Yards

8.4.1. Bridge Cranes (Page 59)

8.4.2. Overhead Cranes (Page 61)

8.4.3. Peg-Leg Cranes (Page 63)

8.4.4. Whirley Cranes (Page 64)

8.4.5 Floating Cranes (Page 65)

8.5. Electrical Services

Main Yard

240/120 volts - 20,150 KVA

460 volts - 17,550 KVA

2,400 volts - 6,000 KVA

4,160 volts - 3,000 KVA

Westwego Yard

240/120 volts - 3,500 KVA

460 volts - 4,500 KVA

2,400 volts - 1,500 KVA

The electrical shops are capable of building and repairing all types of electrical and electronic equipment associated with the shipbuilding industry. Equipment includes the latest types of testing equipment in accordance with all relevant codes. Functions include repair of welding machines, cranes, compressors, motor rewinding and marine electrical construction and maintenance.

8.6. Machine Shop - Main Yard

The Machine Shop in the Main Yard is equipped with the usual complement of machine tools required to support new ship construction and repair work. The minimum amount of machine

shop work is "sub-contracted" to other Avondale Divisions or out-side contractors. Types of equipment available are:

engine lathes, capacity up to 74" swing;

turret lathes, capacity up to 18" swing;

- horizontal boring mills, numerically controlled, with capacity up to 7" spindle, x = 408", y = 214", and z = 60";

vertical boring mills, capacity up to 80" diameter x 56" high;

milling machines;

shapers;

machine tool center, numerically controlled, capacity of 24" x 50";

- planers, capacity up to 6' wide x 40' bed;;

- gear cutters, capacity up to 16' diameter x 22" face;

saws, drill presses, and other support equipment.

8.7. Panel Line and T-Beam Fabricator at Main Yard

Panel Line - ESAB Model, with capacity of 2" x 60' x 60' panels at a rate of two and one-half panels per day in two 8-hour shifts, consisting of:

tack welder,

- butt welding station,

turnover station,

turn around,

stiffener welding station.

T-Beam Fabricator - Conrac Model, fabricates angles and T's. Web from 1/4" to 1-1/5" thick, from 4" high to 72" high and a flange from 1/4" to 1-1/4" thick and width of 4" to 32". Total length 60'. Capability varies with the section, but it has produced T's 7" x 22" x 40' long at a rate of 42 per 9-hour shift.

8.8. Pipe Fabrication - Main Yard

A feasibility study for a Semi-Automatic Pipe Handling System and Fabrication Facility was prepared by Avondale and submitted to MarAd in April, 1978. This sytem and fabrication facility has now been installed and is in full operation. The essential features of this system are:

- a surface preparation system for raw materials;
- an automatic marking, measuring and cutting system;
- a flange fitting and welding system;
- a bending system with loading and unloading device;
- an assembling and welding system for elbow and branch pipe;
- the use of various types of welding positioners and manipulators;
- x-ray facilities for 2" to 10" and 12" to 24" pipe;
- a handling system designed to limit the use of cranes, to save manhours and to secure work safety; the following devices are examples:
 - automatic pipe loaders for benders,
 - pipe unloaders for removing bent pipe from benders,

elbow portioners for fitting elbows to pipes,
branch pipe positioners for fitting branch pipe to
main pipe,
motorized dollies for transporting complete pipe
assemblies.

In addition to the above, a new building has just been completed as an adjunct to the Pipe Shop. This building is being used as a Module or Package Unit shop for assembling complete piping and pump systems. Small scale three dimensional models are used to help visualize each unit, to help eliminate piping interference and to help insure dimensional accuracy control.

8.9. Platens - Main and Westwego Yards

<u>Main Yard:</u>	Platen No. 1	4,725 sq. ft.
	Platen No. 1A	7,000
	Platen No. 2	18,450
	Platen No. 3	29,250
	Platen No. 6	19,600
	Platen No. 7	40,800
	Platen No. 8	27,000
	Platen No. 9	32,000
	Platen No. 10	50,600
	Platen No. 11	26,000
	Platen No. 12	19,500
	Platen No. 13	48,400
	Platen No. 14	48,100

Platen No. 15	17,875		
Platen No. 16	48,100		
Platen No. 17	51,350		
Platen No. 18	44,525		
Platen No. 19	33,800		
Platen No. 20	136,960		
Platen No. 21	42,900		
Platen No. 22	30,400		
Platen No. 23	32,500		
Platen No. 24	32,500		
Carpenters	11,900		
Total	854.235	=	19.61 Acres

<u>Westwego Yard:</u> Platen No. 1	19,500		
Platen No. 2	14,000		
Platen No. 3	42,000		
Platen No. 4	<u>46,800</u>		
Total	-	=	<u>2.81 Acres</u>

8.10. Rubber Lining Facilities at the Main Yard

Lining Equipment - Plant Facilities include one (1) 6' O.D. x 40" and one (1) 15' O.D. x 30' Blaw Knox Horizontal Vulcanizer, Heated Work Tables, Tape Rerolling Machine, Mixing Churn and Specialized Tools.

General:

- Major functions include removal and re-installation of lining in railroad tank cars and inner and outer walls of pipe and other products.

Elevated Work Platform allows quick access into rolling tank cars which enter the building via yard track facilities.

An air-conditioned storage area is used to store material as required.

- A 400 sq. ft. Burn-Out Building is adjacent to the Rubber Lining Building.

8.11. Sheet Metal Fabrication

The Main Yard Sheetmetal Shop is engaged in the production of a wide variety of products, typical examples being:

ventilation and air-conditioning ductwork, both sheet-metal and plate up to 1/2", plus as required;

- forced draft duct, including expansion joints;

- boiler uptake piping, including expansion joints;

all stainless steel dresses for galley, scullery officers Pantry, CPO pantry;

- metal joiner doors and bulkheads;

work benches, lockers and galley heads;

miscellaneous racks, bins, shelving and furniture.

The shop maintains equipment capable of shearing, forming, notching and welding in *all* required metals. Equipment includes:

- (7) press brakes, up to 22' long, 1/4" plate capacity;
- (4) power shears, up to 20' long, 1/4" plate Capacity;
- (2) OBI punch presses, 85 ton capacity;
- (3) notching presses, 10 ton;

- (2) power rolls, capacity 3/16" plate, 6' long;
- (2) Pulmax Universal machines, 5/16" plate capacity;
- (1) iron workers, 4" x 4' x 1/2" angle capacity;
- (1) press brake, 12' long, 1/2" plate capacity;
- (1) power shear, 12' long, 1/2" plate capacity;
- (1) power roll, 8' long, 3/8" plate capacity;
- (2) resistant spot welders, 150 KVA;

other miscellaneous forming equipment and manual, semi-automatic and inert gas welding equipment.

8.12. Stress Relieving, Normalizing and Radiography Facilities at the Main Yard

Stress Relieving and Normalizing Equipment:

Three Furnaces

Sizes: 2'-6" x 6' x 2'

5'-10" x 24'-6" x 4'

20'X 20' x 44'

Temperature - 2100 Deg. F.

Large furnace is completely automatic, with four zones, each having its own recorder and thermocouples.

Three portable units with a fifty K.W. generator each, used for stress relieving pipe joints and operated at 2100 Deg. F.

Radiography Facilities:

- Gamma Ray, Iridium 192 sources, cameras lincensed for 100 curies, allowing radiography of steel thickness up to 2-1/2". Cobalt 60 source, camera licensed for 1,000 curies for radiographing steel from 2-1/2" to 10" or more.

- X-ray, SMA X-ray units capable of radiographing steel sections up to 3" thick and non-ferrous materials of heavier thickness.
- Dye Penetrant and Magnetic Particle inspection units.
- Ultra-sonic inspection units, for flaw detection and thickness gauging.

8.13. Welding Equipment at Main and Westwego Yards

- . 200 - MIG Gilliland semi-automatic guns
- . 325 - Semi-automatic Gilliland MIG 600 amp power sources CV
- . 5 - Submerged arc Gilliland automatic tractors
- . 50 - Submerged arc automatic with LT-3 tractors
- . 2 - Submerged arc automatic with LT-34 tractors tandem arc
- . 1 - Submerged arc automatic with LT-34 carriage tandem arc
- 1 - Submerged arc automatic with Twin Head Linde tandem arc
- 4 - Submerged arc automatic horizontal
- 3 - Automatic fillet welders gleen pacific
- 40 - Airco mobilematic wire feed unit on 400 amp rectifiers
- 15 - Airco mobilematic on 300 amp CV machines
- 50 - Airco mobilematic or J. Feeders on 250 amp CV machine
- 2 - Airco 250 amp CV machines with miget guns approx.

- 76 - 300/300 AC/DC Heliarc tig - inert gas
- 5 - Airco pulsed arc - inert gas
- 125 - 600 amp rectifiers (Stick electrodes)
- 1,448 - 400 amp rectifiers (Stick electrodes)
- 182 - 400 and 500 amp AC machines (Stick electrodes)
and trac-welders
- 6 - Automatic arc air gougers Lincoln power sources
- 125 - Hand gougers, arc air and tig arc

AVONDALE SHIPYARDS MAIN YARD

BUILDING LIST

<u>BUILDINGS</u>	<u>TYPE OF CONSTRUCTION</u>	<u>NO. OF STORIES</u>	<u>DIMENSION OF BLDG.</u>	<u>NO. OF SQ. FT.</u>	<u>CLASS</u>	<u>CONDITION</u>
101 Rigger Department Office	Steel Frame	1	60'x25'	1,500	D	LC
102 Storage Building	Wood Frame & Coru.	1	215'x'60'	12,900	D	LC
103b First Aid Sta.#2 & Off.Bldg.	Wood	1	68'x33'	2,244	D	A
105 Shock Test Bldg.	Steel Frame Coru.	2	35'x35'	2,450	D	A
106 Porter Service Supply Room	Porc. Steel	1	20'x20'	400	D	LC
107 Cafeteria (Portable)	Porc. Steel	1	25'x25'	625	D	A
109 Sheet Metal Shop	Steel Frame & Coru.	2	465'x100'	46,500	D	G
110 Carpenter Shop & Storage	Steel Frame & Coru.	2	300'x75'	22,500	D	G
112a Warehouse No. 2	Steel Frame & Coru.	1½	370'x70'	25,900	D	A
113a Warehouse No. 3	Steel Frame & Coru	2	600'x143'	86,000	D	A
114 Welding Rod Storage Bldg.	Steel Frame & Coru.	1	100'x55'	5,500	D	A
116 Machine Shop	Steel Corrugated	1	540'x95'	51,300	D	G
118 Pipe Shop	Steel Frame & Coru.	1½	290'x198'	57,565	D	G
119 Avoncraft	Steel Frame & Coru.	1	290'x100	29,000	D	G
120 Paint Shop	Steel Frame & Coru.	1	80'x60'	4,800	D	A
122 Kolene Plant	Steel Frame & Coru.	1	60'x22'	1,320	D	A
124 Fabrication Bldg. Platen 21	Steel Frame & Coru.	1	225'x65'	14,625	D	LC
130 Drafting and Hobby Shop	Steel Frame & Coru.	2	30'x31'	1,860	D	A
132 Wet Dock #1 Paint Stg. Bldg.	Conc. Block	1	29'x25'	725	D	LC
137 Field Office, Electrical Dept.	Wood	1	12'x30'	360	D	A
138 Tank Tester's Office	Wood	1	10'x20'	200	D	A
204b Engineering office space (trailer)	Steel Frame & Coru.	1	36'x64'	2,304	D	A
205b Engineering Bldg. No.1	Steel Porc.	2	250'x60'	30,000	D	E
206b Navy Office Bldg. & Change House	Wood Weather Bd.	2	105'x35'	7,350	D	A
207b Repair Department Office	Wood Weather Bd.	2	60'x25'	3,000	D	A
208 Air Compressor Bldg.	Steel Frame & Coru.	1	85'x50'	4,250	D	G

<u>BUILDINGS</u>	<u>TYPE OF CONSTRUCTION</u>	<u>NO.OF STORIES</u>	<u>DIMENSION OF BLDG.</u>	<u>NO.OF SQ.FT.</u>	<u>CLASS</u>	<u>CONDITION</u>
209b Production Bldg.	Steel Porcelain	2	105'x70'	14,700	D	E
210b Ventilation Engineering Bldg.	Wood Weather Bd.	2	100'x20'	4,000	D	A
212b Customer Building	Wood Weather Bd.	1	25'x25'	625	D	A
213 Cafeteria (Portable)	Steel Porcelain	1	25'x25'	625	D	A
214 Fab. Shop No.2 & Blacksmith	Steel Frame Coru.	1	186'x65'	12,090	D	G
215b LNG Facility Bldg.	Wd. Frame Cor. Sdg.	1½	41'x208'	8,528	D	A
221b Night Superintendent's Office	Steel Frame Coru.	1	35'x20'	700	D	LC
222 Wet Dock No. 1 Restroom	Wood	1	25'x10'	250	D	LC
223b Insulation Rigger & Wet Dock #1 Office Bldg.	Steel Frame Coru.	1	120'x80'	9,600	D	LC
224 Repair Bldg.	Steel Frame Coru.	1	100'x25'	2,500	D	LC
225 Outfitting Storage Bldg.	Steel Frame Coru.	1	30'x25'	750	D	LC
226 Outfitting Machinist Dept.	Steel Frame Coru.	1½	50'x15'	750	D	LC
227 Storage Bldg.	Steel Frame Coru.	1	50'x35'	1,750	D	LC
228b Engineering Bldg. #2	Steel Porcelain	2	110'x75'	16,500	D	E
229 Elec. Dept. & Shop #1	Steel Frame Coru.	1	130'x120'	15,600	D	A
230 Print Reduction Shop	Wood	1	15'x10'	150	D	A
231a Record Storage	Wood	1	10'x6'	60	D	A
233 Platen #1 Work Shop & Template	Steel Frame Coru.	1	20'x100'	2,000	D	LC
235b Drydock Supt. Office	Steel Panel	1	23'x38'11'	874	D	E
240b Personnel Building	Steel Frame Coru.	1	141'x60'	8,460	D	E
253b Engineering Building No. 3	Steel Frame Coru.	2	90'x91'	16,380	D	E
255b Area Superintendent's Office	Wood	2	80'x35'	5,600	D	A
301b Area Supt. Office	Steel Frame Coru.	1	35'x74'	2,620	D	E
302 Clock House B	Wood Weather Bd.	2	140'x86'	12,108	D	A
303 Rest Room	Wood	1	30'x25'	750	D	A
311 Boiler Site Bldg.	Steel Frame Coru.	1	360'x80'	28,800	D	LC

	<u>BUILDINGS</u>	<u>TYPE OF CONSTRUCTION</u>	<u>NO. OF STORIES</u>	<u>DIMENSION OF BLDG.</u>	<u>NO. OF SQ.FT.</u>	<u>CLASS</u>	<u>CONDITION</u>
312b	Office Bldg.	Wood Coru.Alum.	1	15'x10'	150	D	LC
316	Compressor Bldg. #1	Steel Frame Coru.	1	35'x16'	560	D	LC
325	LNG Paint Storage Bldg.	Conc. Block	1	58'x25'	1,450	C	LC
352	Shipbuilding Area Bldg.	Steel Frame	1	10'x12'	120	A	G
402	Compressor Bldg. #4	Steel Frame Coru.	1	75'x65'	4,875	D	LC
412	Rotoblast Bldg.	Steel Frame Coru.	1	80'x49'	3,920	D	A
420	RestRoom Lower yard (portable)	Steel Frame	1	12'x24'	388	A	A
422	Restroom Lower yard (portable)	Steel Frame	1	12'x24'	288	A	A
501b	Office Bldg.	Steel Frame Coru.	2	185'x40'	14,800	D	A
502	Scaffold Repair Bldg.	Steel Frame Coru.	1	55'x50'	2,750	D	LC
503	Boiler Bldg.	Steel Frame Coru.	1	60'x40'	2,400	D	LC
504	Moldloft Storage	Wood Weather Bd.	2	100'x20'	4,000	D	A
505	Wet Dock No.3 Rest Room	Wood	1	20'x5'	100	D	LC
506	Boiler Barge & Office (Gas Freeing Plant)	Steel Frame Coru.	1	200'x45'	9,000	D	LC
510	Compressor Bldg. #5	Steel Frame Coru.	1	65'x50'	3,250	D	LC
520	Engine Assembly Bldg.	Steel Frame	1	46'x80'	3,680	A	E
535	Riggers Storage Bldg.	Steel Frame	1	24'x24'	576	A	LC
536	Electric Storage Bldg.	Steel Frame	1	24'x24'	576	A	LC
537	Sheet Metal Bldg.	Steel Frame	1	24'x24'	576	A	LC
538	Pipe Fitters Bldg.	Steel Frame	1	24'x24'	576	A	LC
539	Pipe Fitters Bldg.	Steel Frame	1	24'x24'	576	A	LC
540	Outside Machinist Stg.Bldg.	Steel Frame	1	17'x73'	1,241	A	LC
527	Paint Storage Bldg. Wet Dock #3	Conc. Block	1	40'x25'	1,000	C	LC
601a	Warehouse No. 1	Steel Frame Coru.	1½	665'x230'	152,950	D	G
610b	Brick Veneer House-Hwy. LA 18	Brick Veneer	1	36'x36'	1,296	C	A
611a	Wood Frame in Fork of Road	Wood Frame	1	45'x32'	1,440	D	LC
701b	Security Office Main Gate	Steel Porcelain	2	15'x185'	2,895	D	A
702	Utility Bldg.	Steel Porcelain	1	100'x30'	3,000	D	A
703b	Administration Bldg.	Stl. Masonry Stone	2	215'x120'	51,600	B	E
704	Hydraulic Equipment Bldg.	Steel	1	55'x30'	1,650	D	LC
707	Automotive Repair Shop & Electric Shop	Steel Frame Coru.	1&2	180'x60'	10,800	D	A
711	Maint. Dept. Storage Bldg.	Conc. Block	1	20'x20'	400	C	LC

<u>BUILDINGS</u>	<u>TYPE OF CONSTRUCTION</u>	<u>NO. OF STORIES</u>	<u>DIMENSION OF BLDG.</u>	<u>NO. OF SQ. FT.</u>	<u>CLASS</u>	<u>CONDITION</u>
712 Records Bldg.	Steel Frame Coru.	1	60'x56'	3,360	D	G
714b Brick Veneer House - Across From Gate #5	Brick Veneer	1	81'x40'	3,240	C	A
718 Mayo House	Wood	1	20'x32'	640	D	A
801 Storage Bldg.	Wood Coru. Alum.	1	15'x10'	150	D	LC
802b Field Office	Wood Coru. Alum.	1	20'x15'	300	D	LC
803 Rest Room	Steel Porcelain	1	25'x10'	250	D	LC
804 Rod Room #1	Steel Porcelain	1	25'x15'	375	D	LC
806b Field Office	Steel Porcelain	1	25'x15'	375	D	LC
807 Plant Engr. & Maint. Bldg.	Steel Frame Coru.	1½	380'x183'	69,540	D	A
808 Storage Bldg.	Steel Porcelain	1	30'x10'	300	D	LC
811 Storage Bldg.	Wood Coru. Alum.	1	15'x10'	150	D	LC
812b Field Office	Wood Coru. Alum.	1	15'x10'	150	D	LC
813 Storage Bldg.	Wood Coru. Alum.	1	15'x10'	150	D	LC
814 Storage Bldg.	Steel Porcelain	1	25'x10'	250	D	LC
827 Blast and Paint Bldg. "B" Area	Steel Frame Coru.	1	430'x123'	52,890	D	A
839b Supt.'s Office Platen #14	Steel Bldg.	1	17'x99'	1,683	D	A
840 P.E. & M. Workshop	Steel Frame	1	28'x39'	1,092	D	LC
885 Tool Room	Steel	1	12'x16'	192	A	G
901b Area Facility Bldg.	Wood	2	130'x40'	10,400	D	A
902 Clockhouse "K"	Wood	1	140'x35'	4,900	D	A
903 N.A.B. Welding School	Steel Frame Coru.	1	140'x20'	2,800	D	G
904b Field Office	Wood Coru. Alum.	1	15'x10'	150	D	LC
907 Plate Shop	Steel Frame Coru.	1	882'x133'	117,306	D	G
908 Shot Blast Bldg.	Steel Frame Coru.	2	240'x45'	21,600	D	A
909 Pickling Plant	Steel Frame Coru.	1	65'x35'	2,275	D	LC

<u>BUILDINGS</u>	<u>TYPE OF CONSTRUCTION</u>	<u>NO. OF STORIES</u>	<u>DIMENSION OF BLDG.</u>	<u>SQ. FT.</u>	<u>NO. OF CLASS</u>	<u>CONDITION</u>
922 Fiberglass Bldg.	Porcel. Enam.	1	66' x27'	1,782		A
923 Structural Blast Bldg.	Steel Frame Coru.		109' x22'	2,398	D	LC
927 Drum Storage Bldg.	Steel Frame Coru.	1	120' x60'	7,200		A
928 Rubber Plant	Steel Frame Coru.	1	200' x80'	16,000	D	A
929 Solvent Bldg.	Conc. Block	1	51' x20'	1,020	D	LC
930 T-Beam Fab. Bldg.	Steel Frame Coru.	1	55' x422'	23,210	D	A
931 Burn-out House	Steel Frame Coru.	1	16' x24'	384	D	LC
935 Welder's Field Office Platen #24	Wood	1	10' X20'	200	D	LC
937 Field Office	Steel Frame	1	12' X12'	144	A	G

Total 1,211,687

(I indicates Warehouse Area
(I indicates Office Area

Class Of Construction

- (A) Steel Structure
- (B) Reinforced Concrete Columns
- (C) Masonry or Concrete Load Bearing Walls
- (D) Wood or Steel Skeleton Frame

Condition

- G - Good
- A - Average
- LC - **Low cost**
- E - Excellent

WESTWEGO YARD

<u>BUILDINGS</u>	<u>TYPE OF CONSTRUCTION</u>	<u>NO. OF STORIES</u>	<u>DIMENSION OF BLDGS.</u>	<u>NO. OF SQ. FT.</u>	<u>CLASS</u>	<u>CONDITION</u>
001b Area Facility Bldg. #1	Wood	2	54'x72'	7,776	D	A
002b Area Facility Bldg. #2	Wood	2	27'x72'	3,888	D	A
003 Corner Post Bldg.	Steel Frame Coru.	1	33'x42'	1,386	D	LC
004 Blast & Paint Bldg.	Steel Frame Coru.	1	45'x168'	7,560	D	LC
005 Maint. Mech. Field Office	Steel Frame Coru.	1	10'x10'	100	D	LC
006 Maint. Elec. Field Office	Steel Frame Coru.	1	10'x10'	100	D	LC
007 Maint. Mech. Shop & Storage	Steel Frame Coru.	1	20'x24'	480	D	LC
008 Welding Dept. Office & Storage	Steel	1	14'x20'	280	D	LC
009 Shipfitters' Field Office	Wood	1	10'x10'	100	D	A
010 Yard Clean-up Storage	Wood	1	10'x10'	100	D	LC
011 Pipefitter's Office	Steel	1	10'x16'	160	D	LC
014 Electrical Marine Office	Wood	1	10'x19'	190	D	A
015 Mold Loft Storage	Steel Frame Coru.	1	24'x85'	2,040	D	LC
020 Compressor Building	Steel Frame Coru.	1	27'x36'	872	D	LC
022 Electrical Storage Bldg.	Steel Frame Coru.	1	12'x24'	288	D	LC
024 Curing Building	Steel Frame Coru.	1	84'x84'	7,056	D	LC
TOTAL:				32,376		

[illegible]

BRIDGE CRANES					
ASI No.	MANUF.	LOCATION	CAP	GAGE	HOOK HT.
89	ASI-YALE HOIST	PLATEN 1	5	44'-0"	23'-2"
90	ASI-YALE HOIST	PLATEN 21	10	44'-0"	22'-9"
151	ASI-YALE HOIST	PLATEN 19	10/10	65'-0"	35'-2"
330	ASI-YALE HOIST	PLATEN 14	10/5	65'-0"	21'-5" / 23'-4"
355	ASI-YALE HOIST	PLATEN 15	5/5	65'-0"	23'-9"
553	ASI-YALE HOIST		10/5	65'-0"	23'-11" / 24'-6"
567	ASI-ROBBINS & MYERS HOIST	PLATEN 11	10/10	75'-0"	32'-0"
627	ASI-YALE HOIST		5/5	65'-0"	24'-3"
643	ASI-YALE HOIST	PLATEN 3	10/5	65'-0"	22'-10" / 23'-1"
663	ASI-YALE HOIST	PLATEN 12	5/5	65'-0"	35'-9"
666	ASI-YALE HOIST	PLATEN 2	5	44'-0"	23'-11"
741	ASI-YALE HOIST	PLATEN	5/5	60'-0"	24'-6"
742	ASI-YALE HOIST	PLATEN 17	5/5	65'-0"	46'-7"
743	ASI-YALE HOIST	PLATEN 18	5/5	65'-0"	46'-9"
782	ASI-YALE HOIST	PLATEN 22	5/5	46'-0"	24'-10"
783	ASI-YALE HOIST	PLATEN 19	5/5	65'-0"	33'-10"
784	ASI-YALE HOIST	PLATEN 17	15/15/5	65'-0"	54'-8" / 54'-5"
858	WHITING	PLATEN 16	40/10	65'-0"	36'-10" / 37'-3"
860	ASI-YALE HOIST	PLATEN 14	15/15	65'-0"	50'-10"
861	ASI-YALE HOIST	PLATEN 18	5/5	65'-0"	25'-0"
910	VIA NOVA	STEEL STORAGE	17.5	158'-0"	16'-11"
1370	VIA NOVA	STEEL STORAGE	17.5	158'-0"	16'-11"
2110	ASI-KRANCO HOIST	PLATEN 16	25/5	65'-0"	34'-3" / 35'-0"
2373	ASI-YALE HOIST	STRUCT. BLAST	5/5	24'-0"	16'-4"
2410	ASI-YALE HOIST	STRUCT. BLAST	5/5	18'-0"	16'-4"

BRIDGE CRANES					
ASI No.	MANUF.	LOCATION	CAP.	GAGE	HOOK HT
2715	ASI-YALE HOIST	PLATEN 21	5	44'-0"	22'-2"
2785	CLYDE	STORAGE AREA/ PLATENS 23 & 24	25/25	200'-0"	60'-0"
2797	ASI-YALE HOIST	MAINT. BLDG.	5	22'-0"	18'-2"
3547	ASI-YALE HOIST	DOOR PLANT	5	38'-0"	11'-10"
3830	ASI-DETROIT	PLATEN 6	25	37'-0"	30'-5"

OVERHEAD CRANES					
ASI No.	MANUF.	LOCATION	CAP.	GAGE	HOOK HT.
223	ASI-E-E HOIST	SHEET METAL	5	25'	11'-10"
293	CASE	SHOP 1	10	60'	33'-4"
306	CASE	SHOP 2	20/5	59'	24'-6"
352	ASI-YALE HOIST	PICK. PLANT	5/5	30'	21'-1"
353	MM & M	PIPE SHOP	5	28'-2"	16'-11"
387	ASI-MM & M HOIST	PIPE SHOP	10/5	50'	18'-6"
846	MM & M	MACH. SHOP	20/7½	90'	28'-10"
847	ASI-YALE HOIST	MACH. SHOP	50/7½	90'	29'-5"
868	ASI-YALE HOIST	SHEET METAL	5	25'	10'-8"
874	SHEPHARD-NILES	T-BEAM SHOP	20/5	60'	25'-7"
875	MM & M	PIPE SHOP	5	50'	17'-9"
876	MM & M	PIPE SHOP	20/5	50'	18'-7"
909	VIA NOVA	PLATE SHOP	17½	128'-1½"	-
954	KRANCO	PLATEN 20	25	128'-1½"	38'-9"
984	DRESSER	WAREHOUSE 1	25/5	75'	23'-3"
998	KRANCO	PLATEN 20	25	128'-1½"	38'-9"
999	KRANCO	PLATEN 20	25	128'-1½"	38'-9"
1026	KRANCO	PLATEN 20	50/10	128'-1½"	60'-0"
1039	SHEPHARD-NILES	WAREHOUSE 1	100	75'	23'-3"
1042	KRANCO	PLATEN 20	50/10	128'-1½"	60'-0"
1342	KRANCO	KOLENE PLANT	5	17'	18'-11"
1685	ASI-YALE HOIST	PIPE SHOP	5	28'-2"	15'-0"
2683			3	25'	12'-8"
2716	ASI-CM HOIST	PLATEN 21	2	24'	7'-9"
2726	ASI-MM & M HOIST	PLATEN 21	1	24'	6'-8"

OVERHEAD CRANES					
ASI No.	MANUF.	LOCATION	CAP.	GAGE	HOOK H.
2757	LANDEL	MACH. SHOP	75/15	90'	27'-8"
2782	HVICANS	PLATE SHOP	60/60	68'	72'-0"
4127	KRANCO	PLATEN 20	35/35	128'-1½"	60'-0"
4201	R-M	SHEET METAL			
4202		SHEET METAL			
4279	KRANCO	T-BEAM SHOP		59'	
4301	ASI-	DOOR PLANT	2	24'	

PEG-LEG CRANES					
ASI NO.	MANUF.	CAP	GAGE	HOOK HT.	LOCATION
820	KRANCO	10	54'-4"	28'-0"	PLATE SHOP
821	KRANCO	10	54'-4"	28'-0"	PLATE SHOP
822	KRANCO	10	54'-4"	28'-0"	PLATE SHOP
933	KRANCO	10	54'-4"	28'-0"	PLATE SHOP
2541	KRANCO	10	54'-4"	28'-0"	PLATE SHOP
4199	ASI-BUDGIT	2/2	34'-0"	20'-0"	PLATE SHOP

WHIRLEY CRANES

NO.	ASI NO.	MANUF.	SERIAL NO.	MAIN HOIST L	WHIP HOIST L	CAP
1	327	CLYDE	3469	87'-0"	100'-0"	30T
3	373	WASHINGTON	7823	120'-0"	135'-3"	50T
4	431	WASHINGTON	7824	104'-5"	119'-9"	50T
5	432	WASHINGTON	7849	104'-9"	119'-9"	50T
7	493	WASHINGTON	4448	89'-0"	105'-4"	50T
8	492	WASHINGTON	4449	114'-0"	125'-0"	42T
10	587	CLYDE	3748	96'-4"	105'-5"	50T
12	589	CLYDE	3453	116'-0"	131'-0"	60T
13	640	CLYDE	3307	116'-0"	131'-0"	50T
14	672	CLYDE	3723	117'-2"	132'-7"	54T
15	734	WASHINGTON	4954	151'-0"	166'-0"	50T
16	735	WASHINGTON	5234	140'-6"	163'-3"	38T
18	852	WASHINGTON	5065	150'-6"	164'-0"	50T
19	853	WASHINGTON	5068	108'-4"	122'-0"	50T
23	1679	CLYDE	3960	125'-0"	140'-0"	160T
24	1796	CLYDE	3961	125'-0"	140'-0"	160T
25	1797	CLYDE	3962	125'-0"	140'-0"	160T
26	3786	WASHINGTON	5494	155'-0"	170'-0"	60T

FLOATING CRANES

Avon Senior Floating Stiff-Legged, Double-Boom, Derrick Crane:

- 600 tons capacity with 150 ton capacity auxiliary hook.

Pecco Barge-Mounted Tower Crane:

- 2-1/2 ton capacity up to 130 ft. radius
- 8-1/2 ton capacity up to 65 ft. radius

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**Transportation
Research Institute**